

Does This Flight Make My Footprint Look Big?

**ECO
HERO**

Shrinking the carbon footprint
of your travel habit

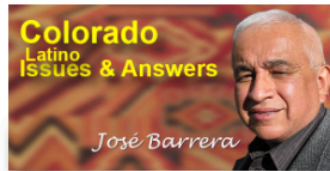
Dave Gardner
Co-Host
GrowthBusters Podcast

STUDIO 809

GET THE FRONT RANGE PODCAST BUZZ



ELEVATING
Pikes Peak
Women

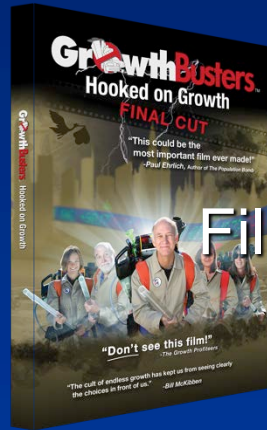




GrowthBusters
Podcast



GrowthBusters
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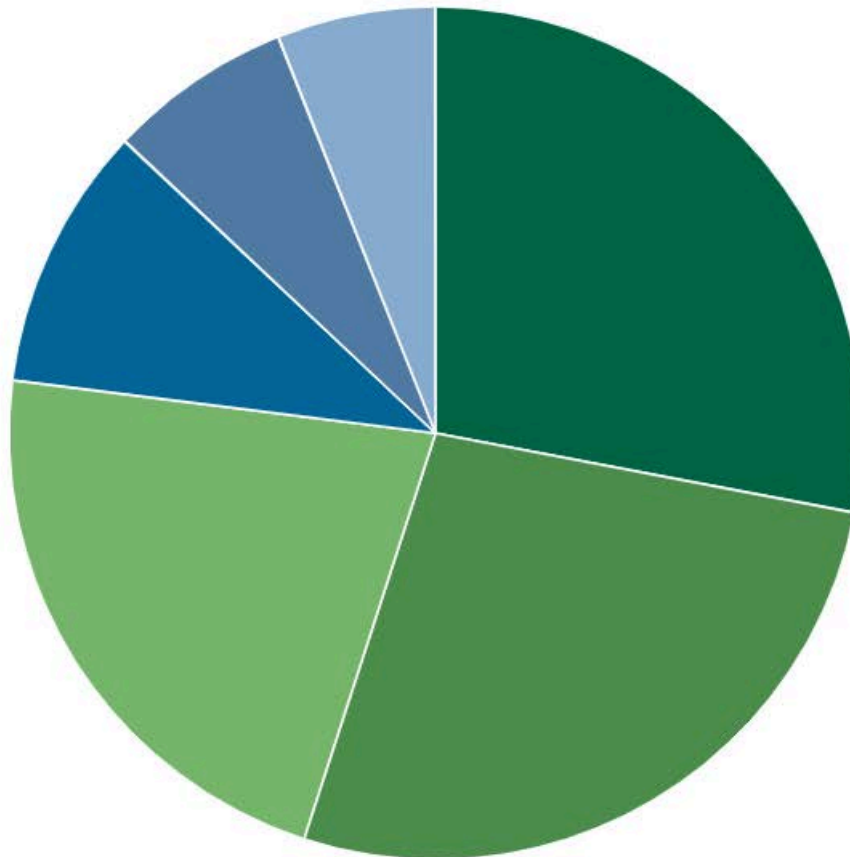
Local
Podcast

www.growthbusters.org

www.conversationearth.org

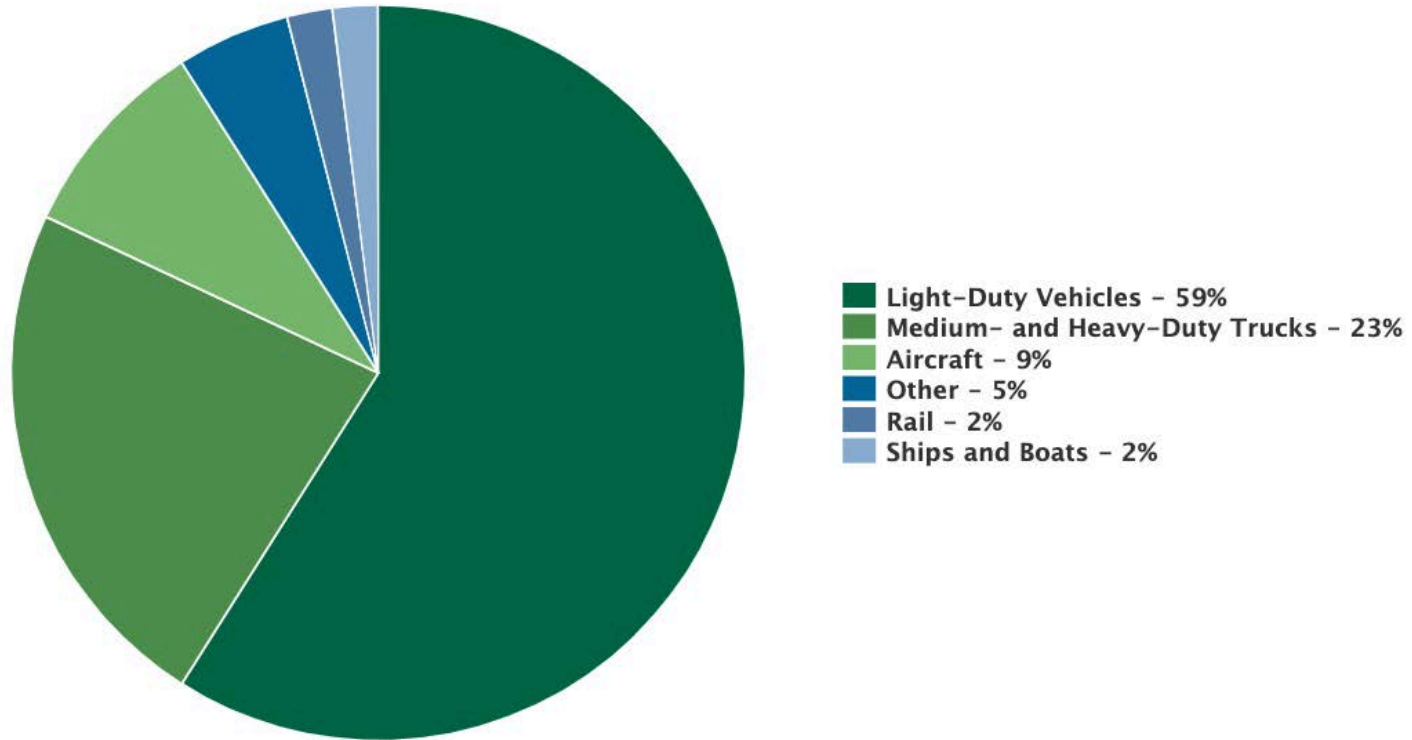
youtube.com/growthbuster

2018 U.S. GHG Emissions by Sector



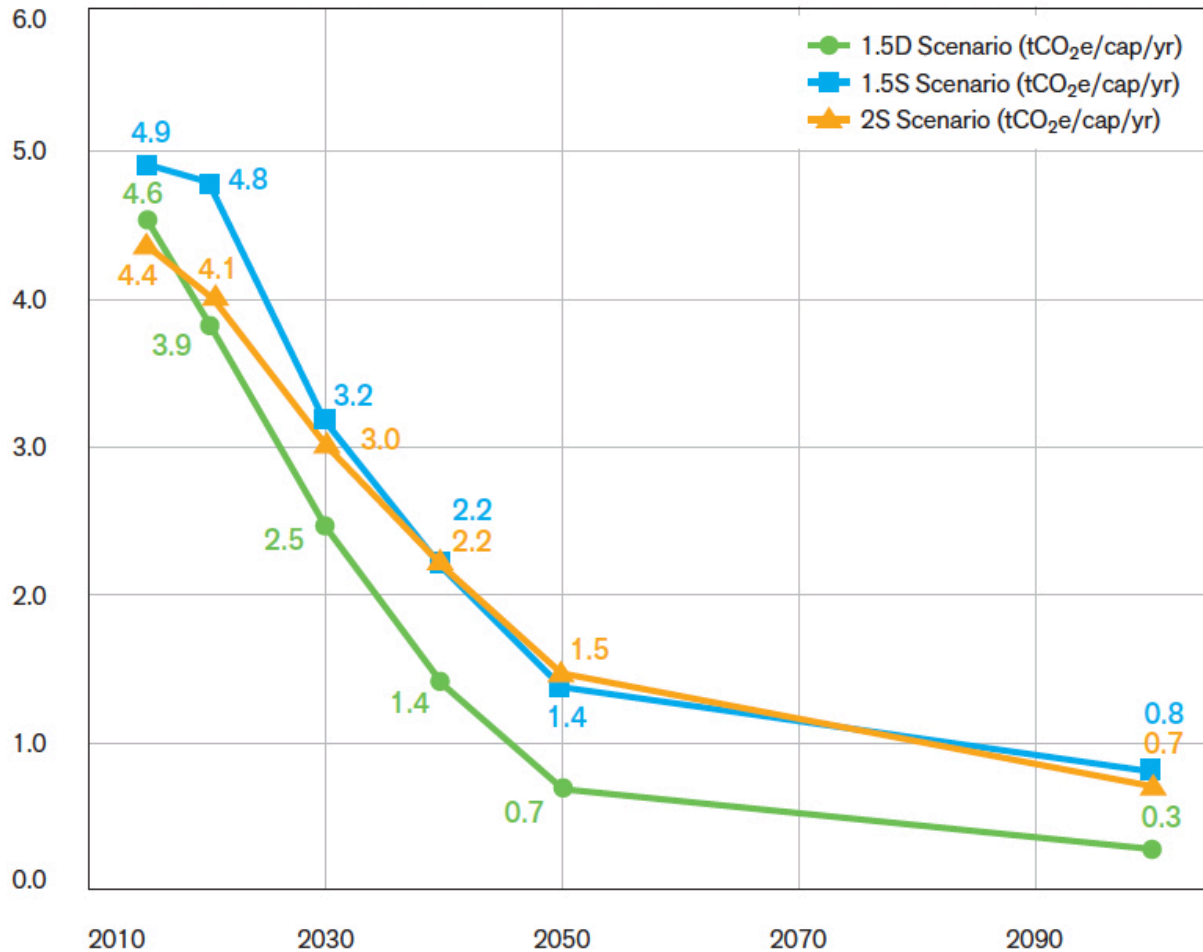
- Transportation - 28%
- Electricity - 27%
- Industry - 22%
- Agriculture - 10%
- Commercial - 7%
- Residential - 6%

2018 U.S. Transportation Sector GHG Emissions by Source

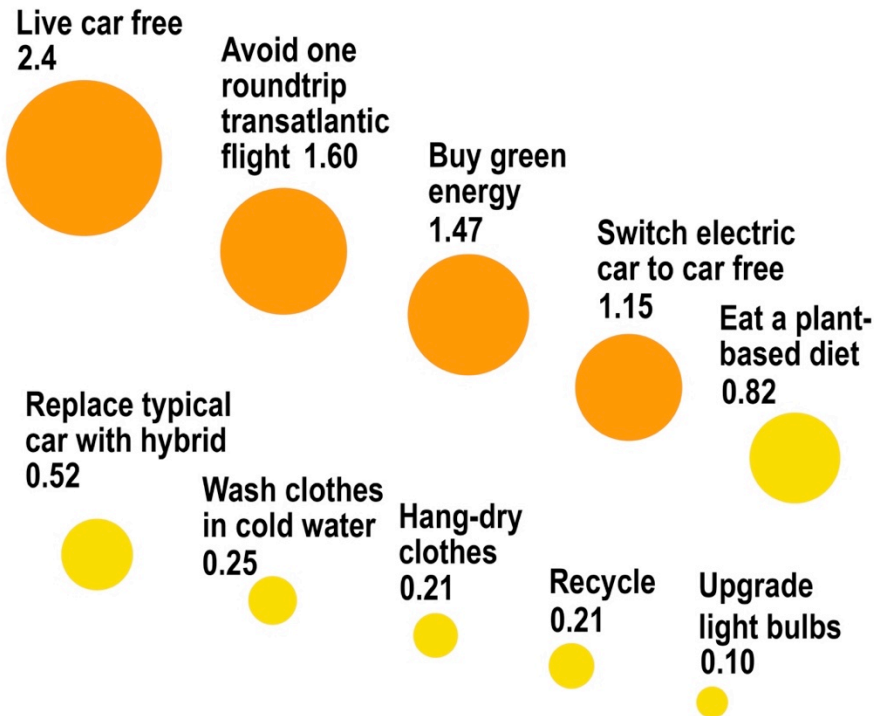
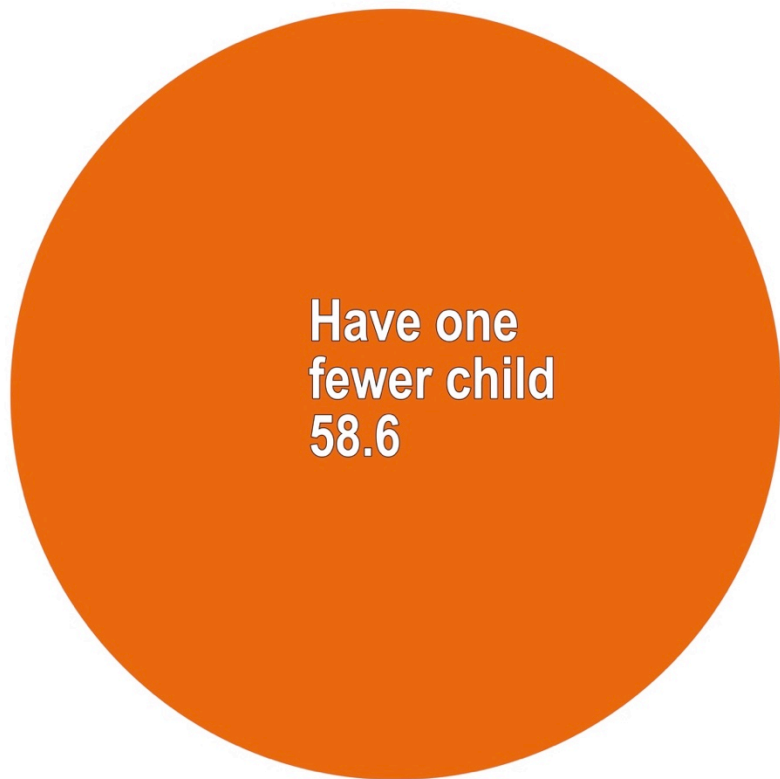


Note: Totals may not add to 100% due to rounding. Transportation emissions do not include emissions from non-transportation mobile sources such as agriculture and construction equipment. "Other" sources include buses, motorcycles, pipelines and lubricants.

Lifestyles Carbon Footprint Budget (tCO₂e/cap/yr)



Tons of CO2 Saved Per Year



Data Source: Wynes & Nicholas, Environmental Research Letters

CHOICES

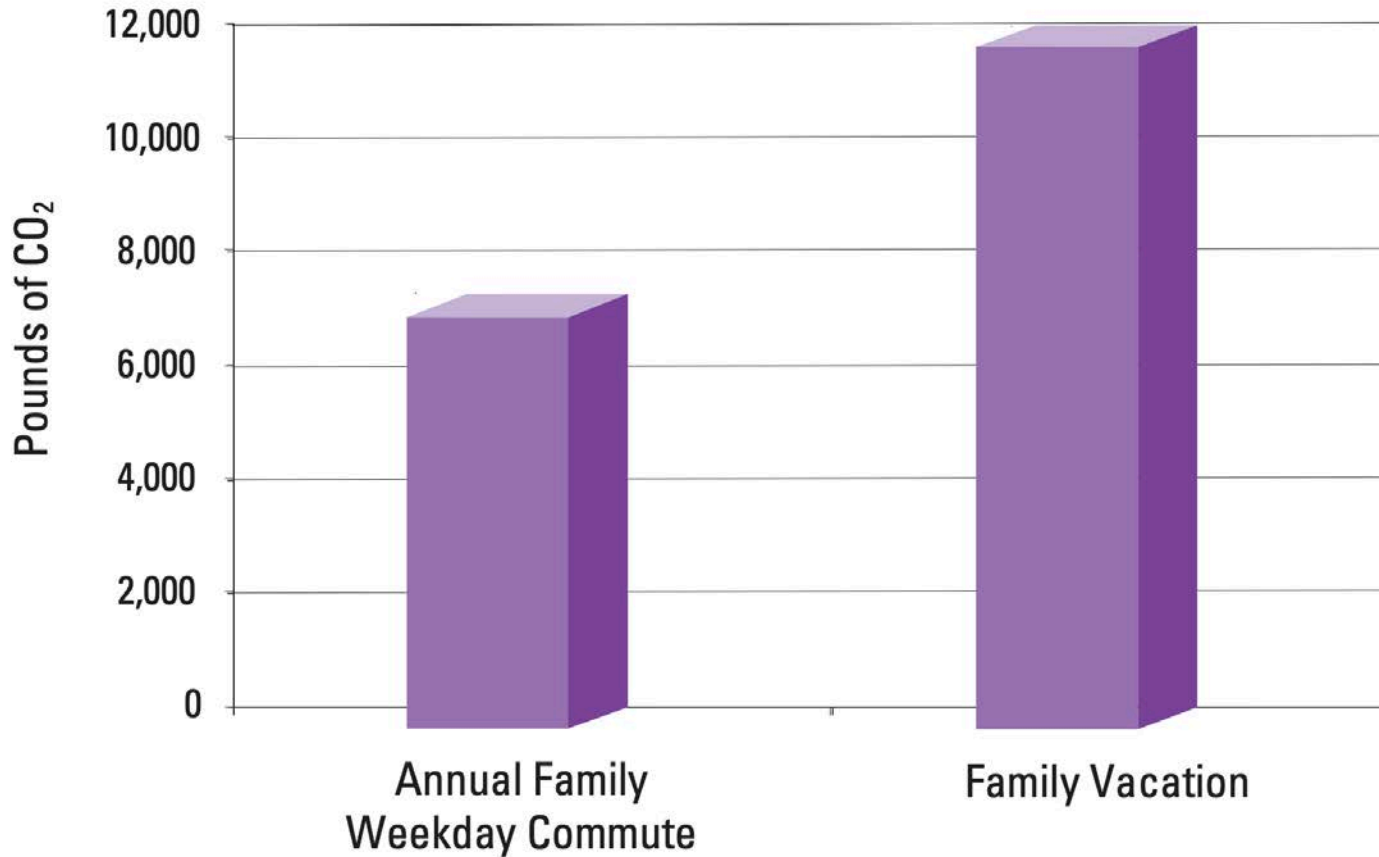
- Walk
- Bicycle
- Bus
- Car-Pool
- Train
- Fly
- Cruise Ship
- Work from Home or Commute
- Virtual Conference or Travel for In-Person Experience
- Vacation or Staycation

VACATIONS & BIZ TRIPS

Choosing a Transportation Mode



Elsen Family Commute vs. First-Class Vacation





Vacation Traveler Carbon Guide

The tables below list travel options from best to worst. Try to avoid those in red!

Best Travel Options: Solo Traveler

	100 miles	500 miles	1,000+ miles
Best	● Take motor coach	● Take motor coach	● Take motor coach
	● Take train	● Take train	● Fly economy
	● Fly economy	● Fly economy	● Take train
	● Drive typical car	● Drive typical car	● Fly first class
	● Drive typical SUV	● Fly first class	● Drive typical car
Worst	● Fly first class	● Drive typical SUV	● Drive typical SUV

Best Travel Options: Two Travelers

	100 miles	500 miles	1,000+ miles
Best	● Take motor coach	● Take motor coach	● Take motor coach
	● Take train	● Take train	● Fly economy
	● Drive typical car	● Drive typical car	● Take train
	● Drive typical SUV	● Fly economy	● Drive typical car
	● Fly economy	● Drive typical SUV	● Drive typical SUV
Worst	● Fly first class	● Fly first class	● Fly first class

Best Travel Options: Family of Four

	100 miles	500 miles	1,000+ miles
Best	● Take motor coach	● Take motor coach	● Take motor coach
	● Drive typical car	● Drive typical car	● Drive typical car
	● Drive typical SUV	● Drive typical SUV	● Drive typical SUV
	● Take train	● Take train	● Fly economy
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ucsusa.org/resources/getting-there-greener

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ucsusa.org/resources/getting-there-greener

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100 miles

500 miles

1,000+ miles



ucsusa.org/resources/getting-there-greener

Best Travel Options: Family of Four

100 miles

500 miles

1,000+ miles



Low CO2 Emissions (less than .5 lbs. CO2/mile)

- Bus
- Train
- Hybrid or Electric Auto
- Flying Coach on Narrow Jets

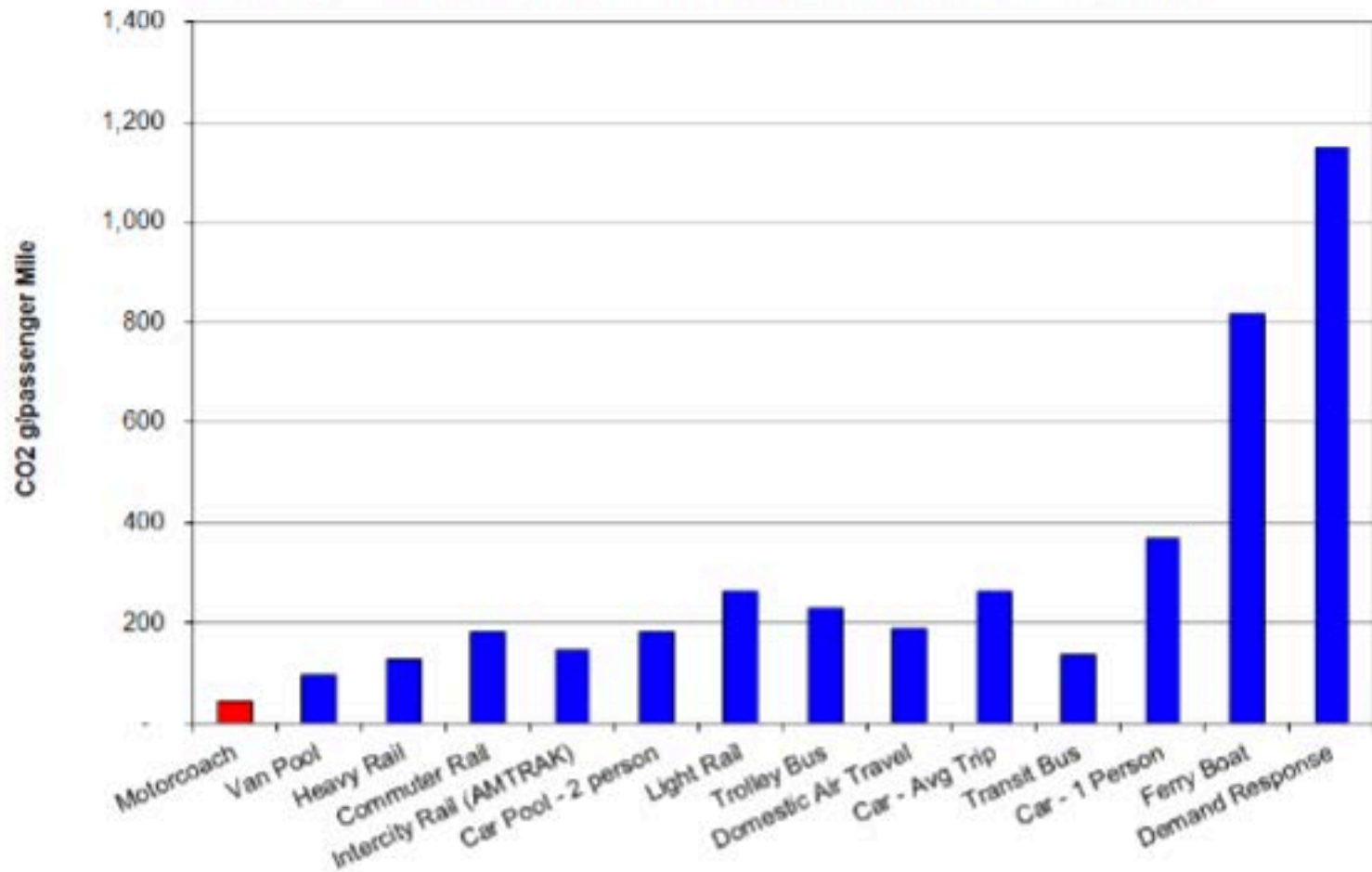
Medium CO2 Emissions

- Traditional Auto
- Fly Coach on Regional Jet

High CO2 Emissions (more than 1 lb. CO2/mile)

- SUV
- Fly First Class

Average Carbon Dioxide Emissions (grams) Per Passenger Mile



Air Travel

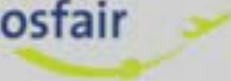


Climate impact of air travel

more than just CO₂

think · go climate conscious

atmosfair



Pollutants produced



Climate impact



Contribution to global warming
(proportional to CO₂)



Total:
1.9-4.7

Source: IPCC (2007)

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'Flight shame' could halve growth in air traffic

🕒 2 October 2019



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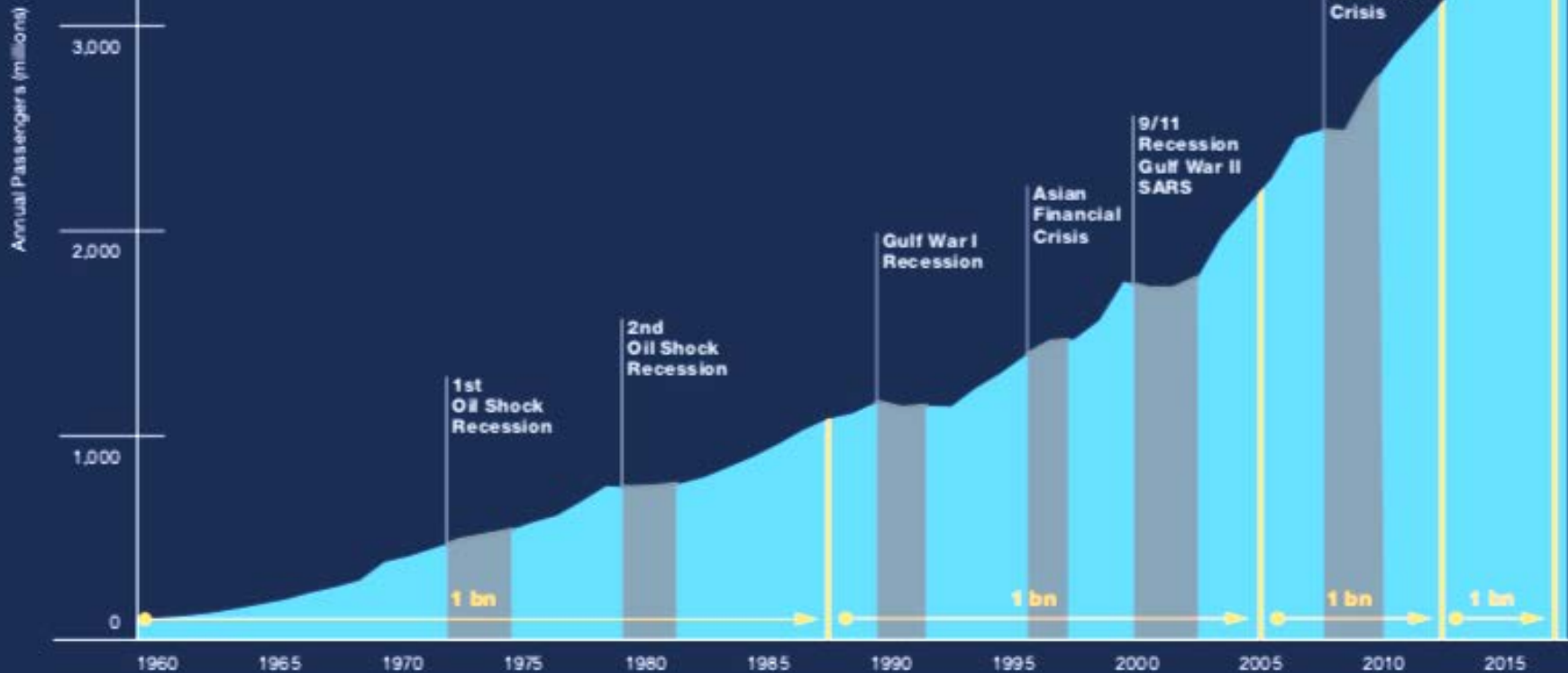
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🕒 16 minutes ago

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Growth in Airline Passengers 1960-2018







Greta Thunberg Says Sea Voyage 'Energized' Her Climate Fight

By Associated Press
December 03, 2019 12:07 PM



Latest News

Europe

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USA



Minimizing Your Flight's CO2

- Business Class: 3X the CO2 as Economy
- Some Flights are Greener
 - Aircraft Type
 - Capacity
 - # of Stops

[Flights](#)[Hotels](#)[Car Rental](#)

Colorado Springs (Any) - Minneapolis (Any)

1 adult | Economy



Thu, Oct 22



Thu, Oct 29

[Show whole month](#)

Additional bag fees may apply

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1 of 100 results (show all)

Sort by Best

Stops

 Non-stop
None 1 stop
\$458 2+ stops
\$471

Flexible tickets

 Only show airlines with flexible tickets

COVID-19 safety rating



COVID-19 confidence



Flexible tickets - for peace of mind if your plans get changed or canceled.



Safety measures - understand what it'll be like on board before you go.

Select a flight to see more info including the airline terms.

Best

\$547

5h 19m (average)

Cheapest

\$547

5h 19m (average)

Fastest

\$547

5h 19m (average)



Greener choice

This flight emits 4% less CO₂ than the average for your searchPlan premiums
as low as
\$0/month
in many areas.[Find Your Plan](#)Terms and
conditions apply.**Humana.**[Feedback](#)

Carbon Emissions Depend on the Route You Take: Flying from Charlottesville, VA, to New York City



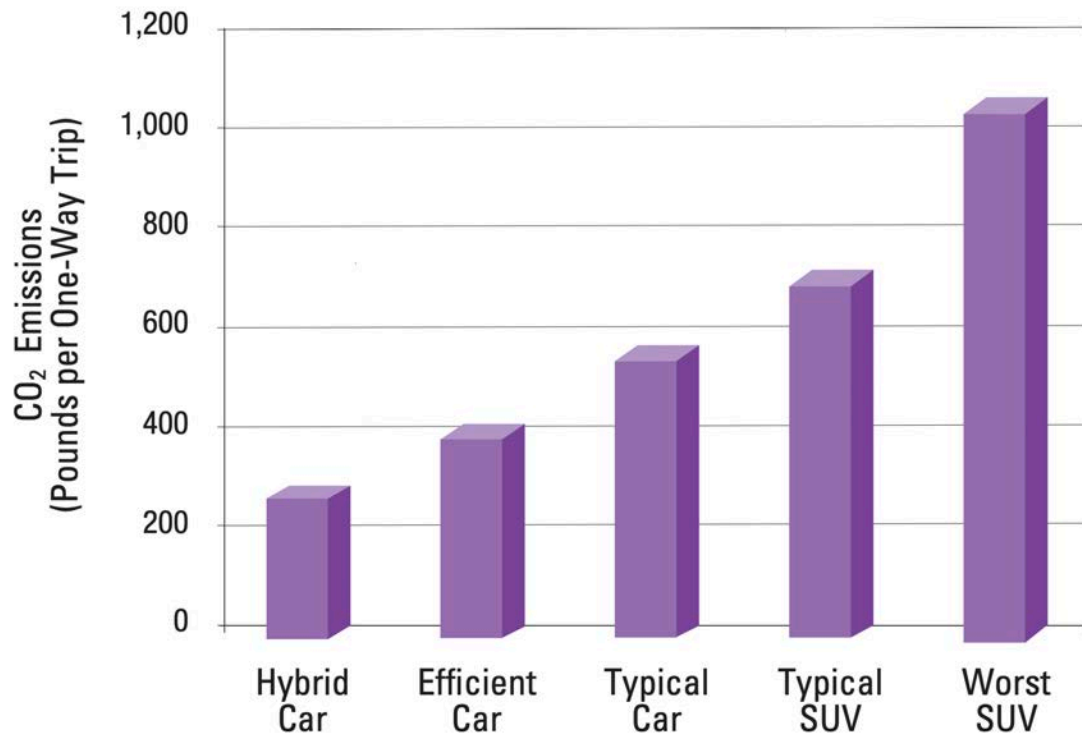
Greening Business Travel

- Encourage Virtual Meetings
- Limit How Many Travel to Same Conference
- “Climate Perks” Offer Paid “Journey Days” for Rail, Coach or Boat Vacation Travel
- Don’t Let Employees Keep Frequent Flyer Miles

Auto Travel

- Gas-Powered
- Car, Truck or SUV
- Hybrid
- Fully Electric (EV)
- HOW We Drive

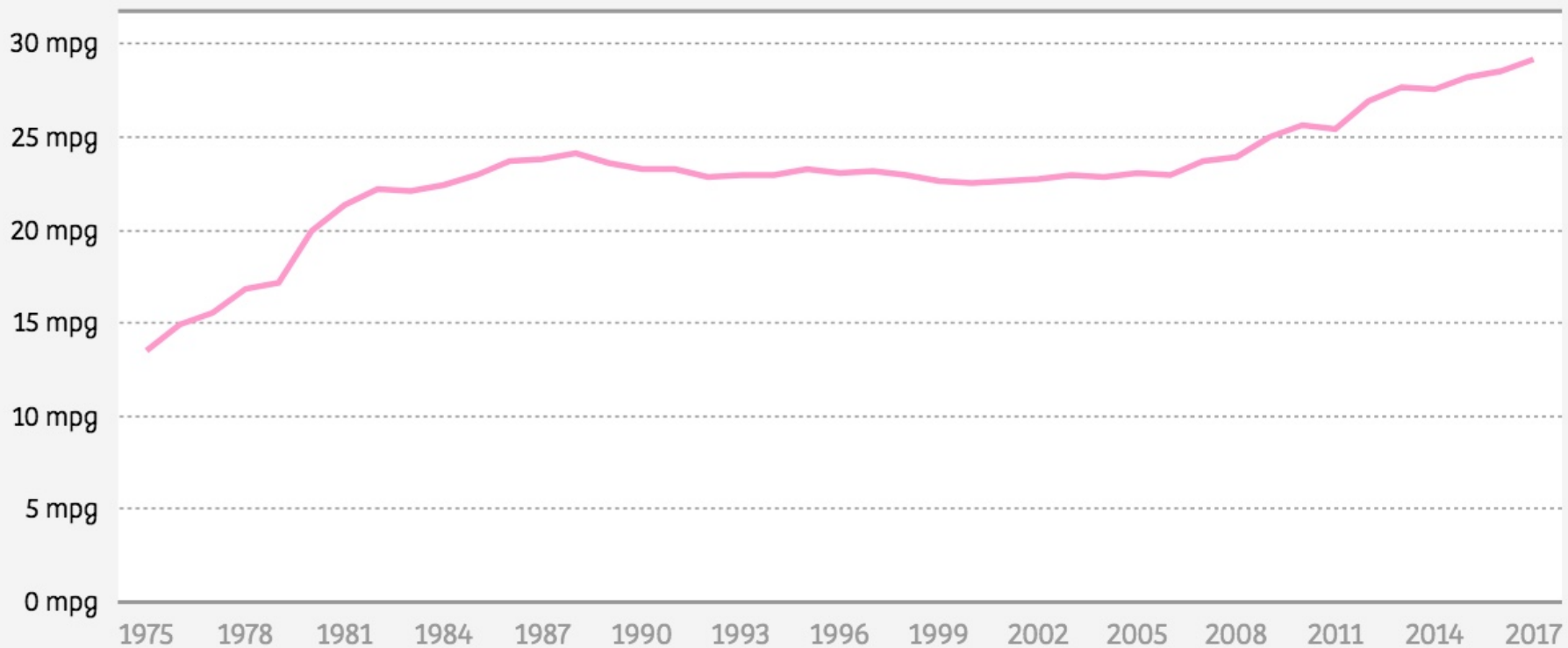
Carbon Emissions Depend on the Auto You Drive: Couple Traveling 500 Miles



Note: This analysis assumes a 46-miles-per-gallon hybrid car, a 32-mpg efficient car, a 23-mpg typical car, an 18-mpg typical SUV, and a 12-mpg worst SUV.

Quick progress, and decades of stagnation in US fuel economy

Average miles per gallon (mpg) of newly sold US cars

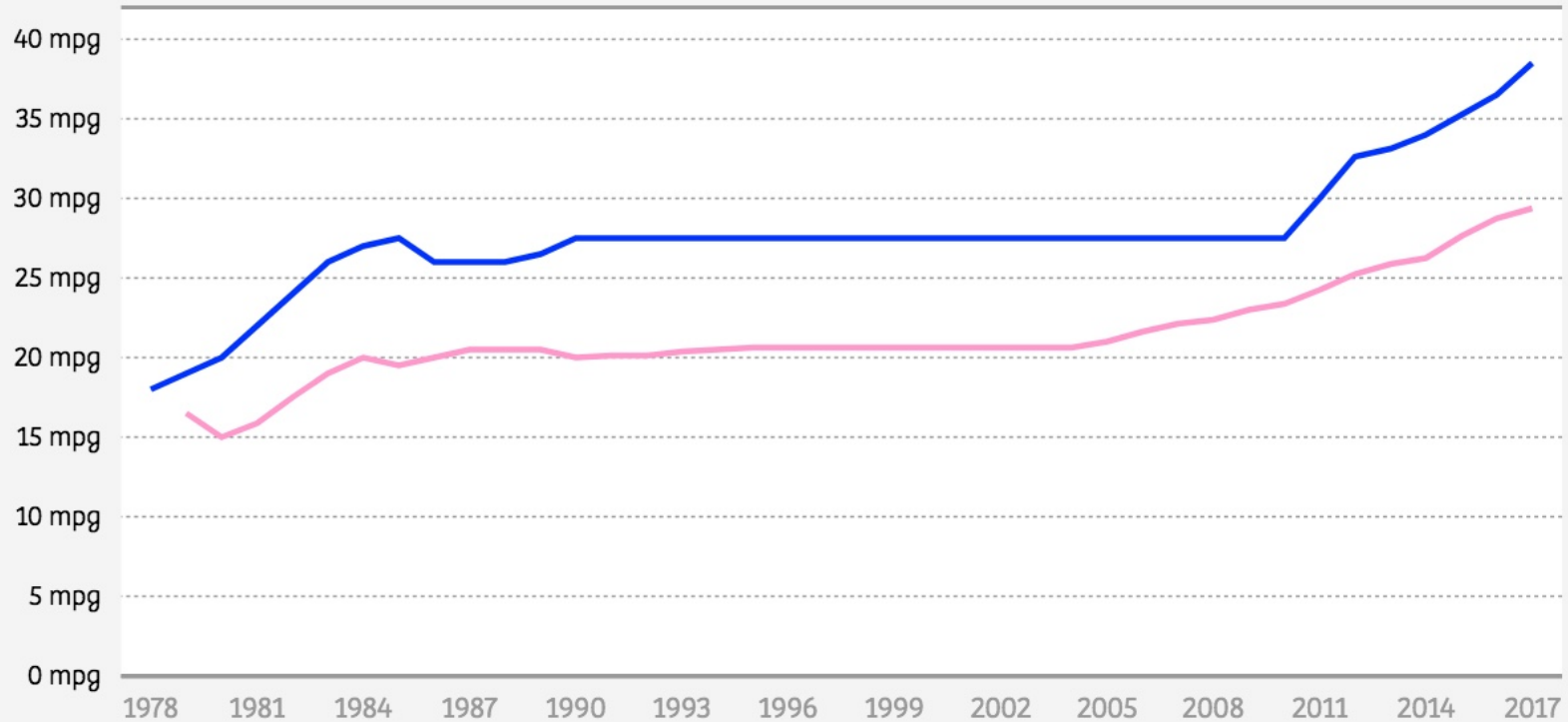


Bron: EPA (2019) • LocalFocus

US American fuel standards are significantly more lenient for SUVs

Miles per gallon

Normal cars Light trucks (SUVs, pickup trucks, and minivans)



Source: EPA (2018) • LocalFocus





A TRAILER
will **EAT YOUR**
FLESH
if you give it the chance.

The most towing power you can get.* And now an advanced trailer sway control system, standard.

ALL-NEW 2011
**SUPER
DUTY**



GET MORE INFO AT FORDVEHICLES.COM



Mucho Macho



Jeep  Pickup



The Cheesecake Factory

The Cheesecake Factory

POKE SALAD BAR

COMMERCIAL LOADING ONLY 24 HOURS

AUX DELICES

Valet

Valet Parking

Poke Salad Bar BAKERY

Poke Salad Bar

BAKERY

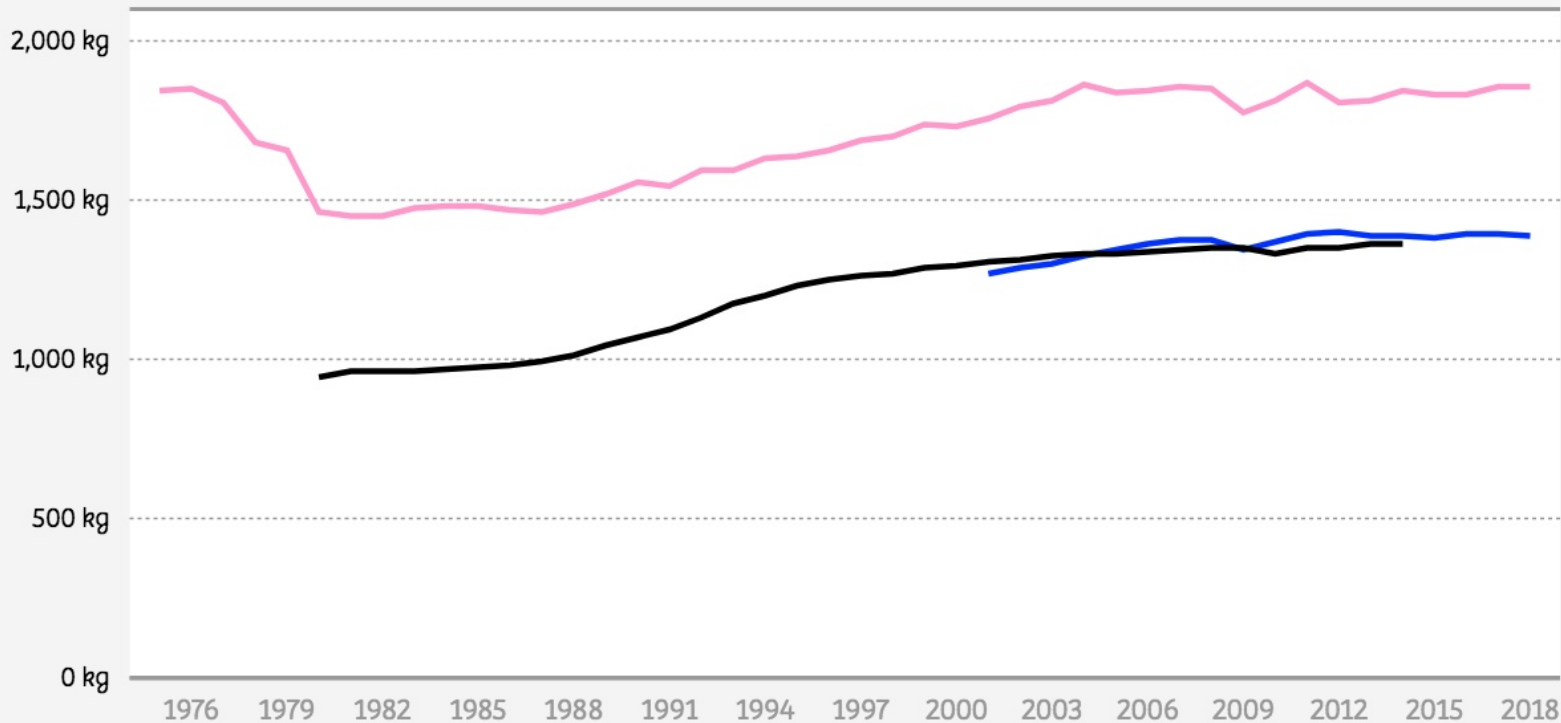
TUNDRA



The rise of the heavy vehicle

Weight of average car sold in kilos

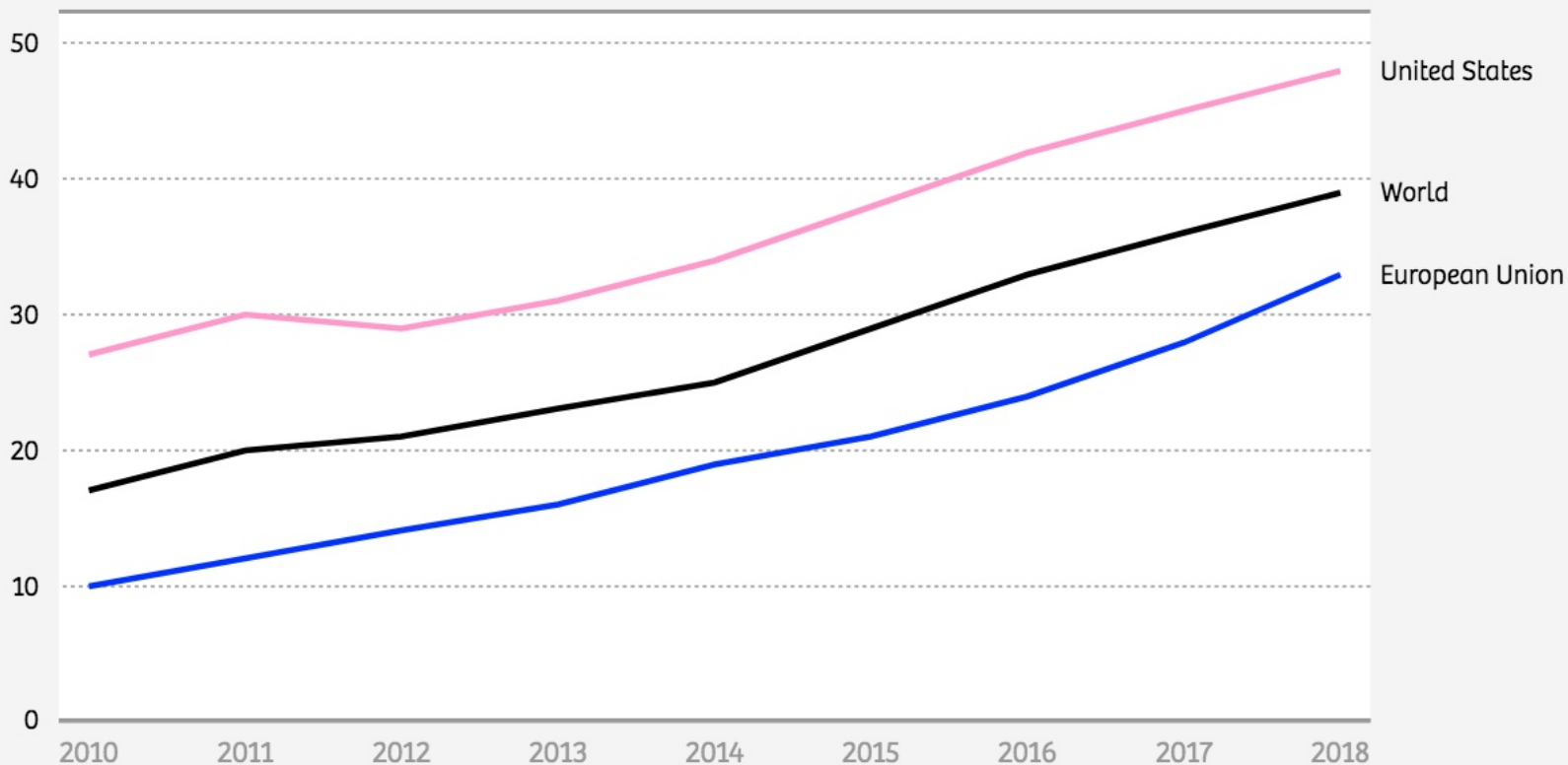
United States European Union Japan



Source: *EPA (2019), ICCT (2019)* • LocalFocus

Big, bigger, biggest: sales of heavy cars have been on the rise

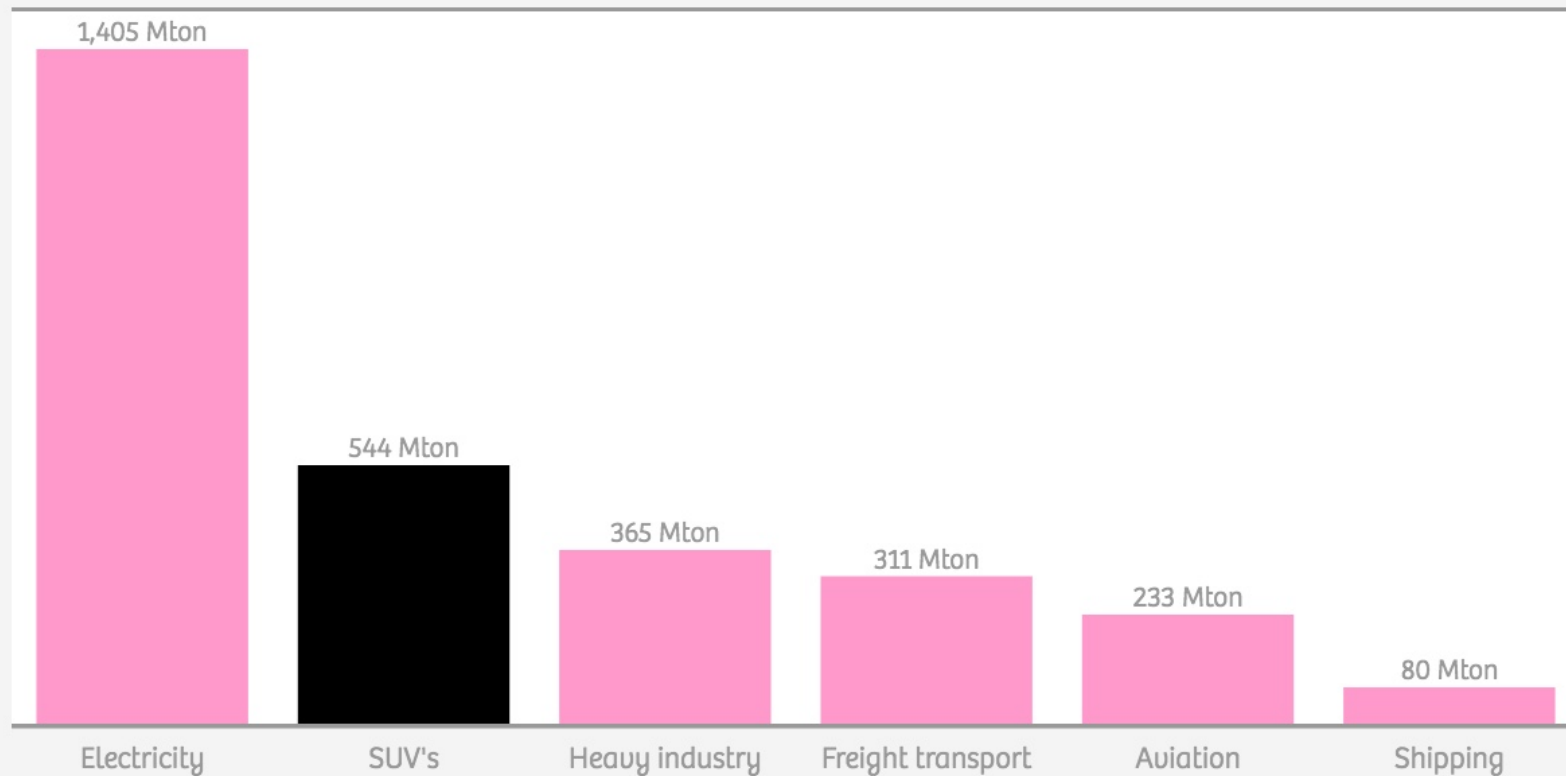
Proportion of SUVs, pickup-trucks and minivans in new car sales



Source: *IEA (2019)* • LocalFocus

SUVs: the second-largest source of increased CO₂ emissions

Extra annual CO₂ emissions from 2010-2018 in megatonnes



Source: *IEA (2019)* • *LocalFocus*

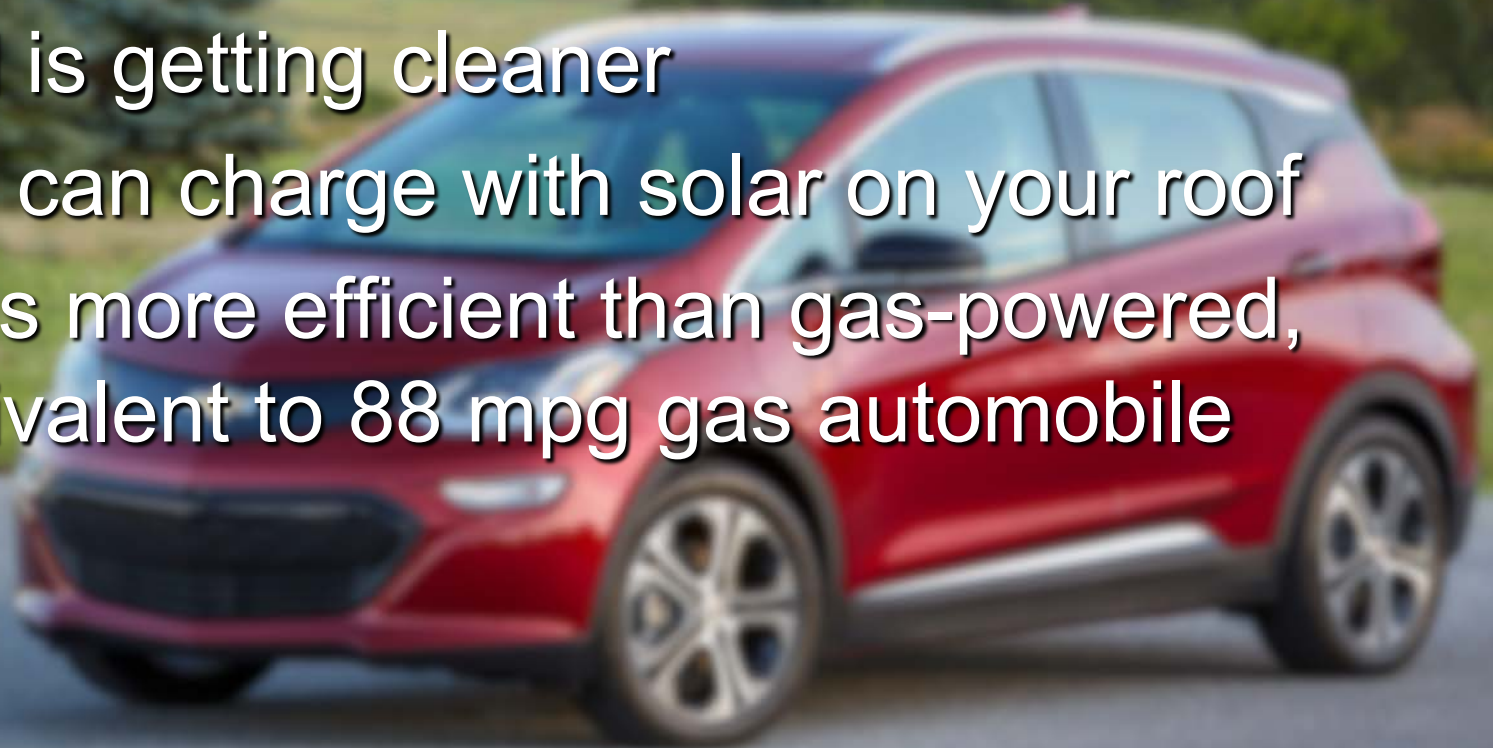


Electric Vehicles



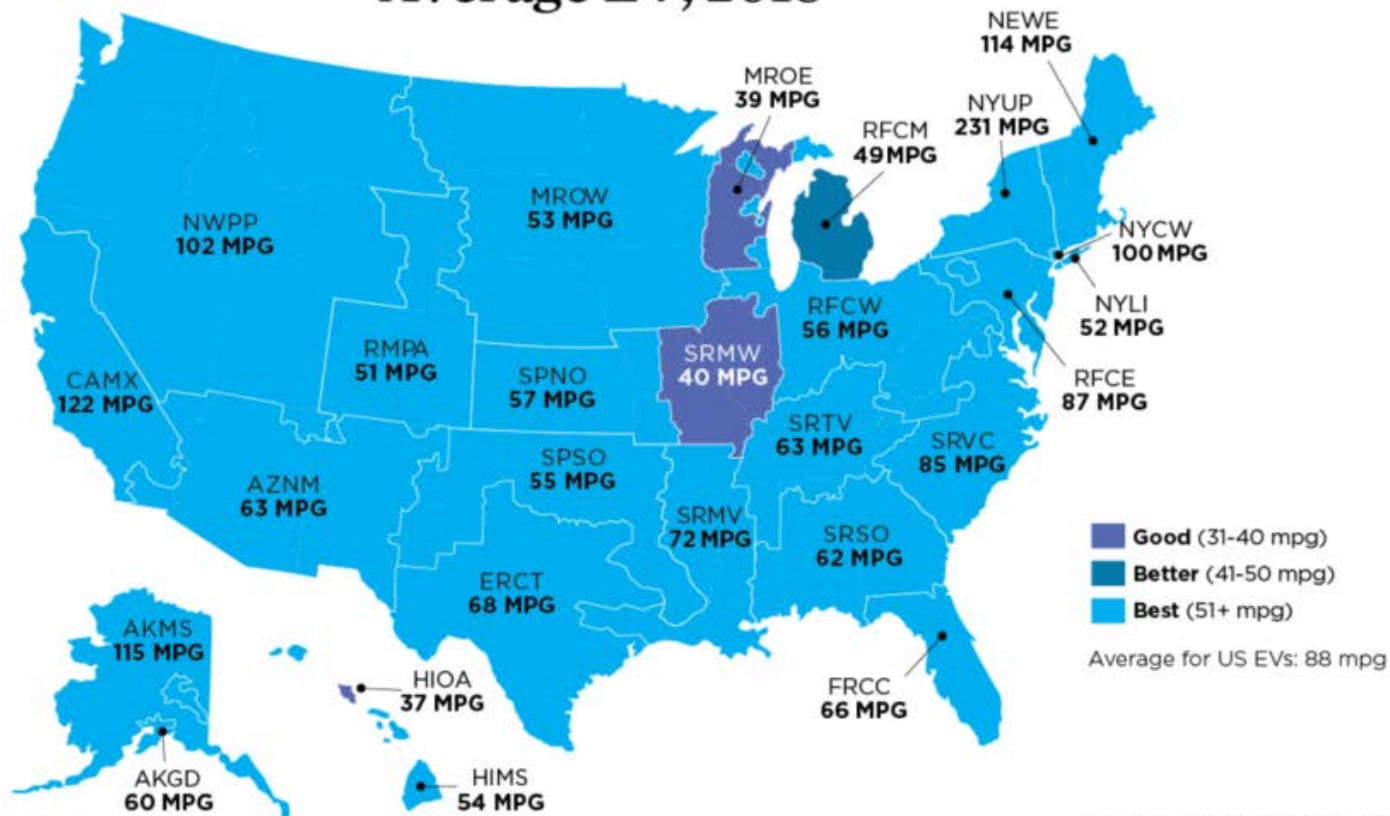
Electric Vehicles

- Grid is getting cleaner
- You can charge with solar on your roof
- EV is more efficient than gas-powered, equivalent to 88 mpg gas automobile



EV Emissions as Gasoline MPG Equivalent

Average EV, 2018



80906

CHEVROLET

BOLT

2019

CLEAR FILTERS

A **2019 Chevrolet Bolt** charged in **80906** produces about as much global warming pollution as a gasoline vehicle getting **58 miles per gallon**.

evtool.ucsususa.org/

GASOLINE-ONLY

Conventional cars run on gasoline and tend to be dirtier and more expensive to fuel than EVs.



381

ⁱ
GRAMS
OF CO₂e
PER MILE

AVERAGE EMISSIONS IN 80906



PLUG-IN HYBRID ELECTRIC

Plug-in hybrids use both gasoline and electricity and can be recharged from an outlet.



238

ⁱ
GRAMS
OF CO₂e
PER MILE



BATTERY ELECTRIC

Battery electric vehicles run on electricity and are some the cleanest and cheapest cars to drive.



211

ⁱ
GRAMS
OF CO₂e
PER MILE



Manufacturing Electric Vehicles

Environmental Impacts

- CO2 Emissions
- Human Rights in Mining
- Water Use in Mining
- Recycling/Disposal of Batteries



CBS News finds children mining cobalt for batteries in the Congo

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Watch CBSN Live



Congress & White House continue stimulus negotiations



Hiker missing for 2 weeks found in Zion National Park



Congressional Democrats & the White House are inching closer to stimulus deal



Midwest economies suffer amid COVID-19 spike as polls show President Trump and Biden tied in the presidential election in battleground states



President Trump criticizes upcoming debate rules







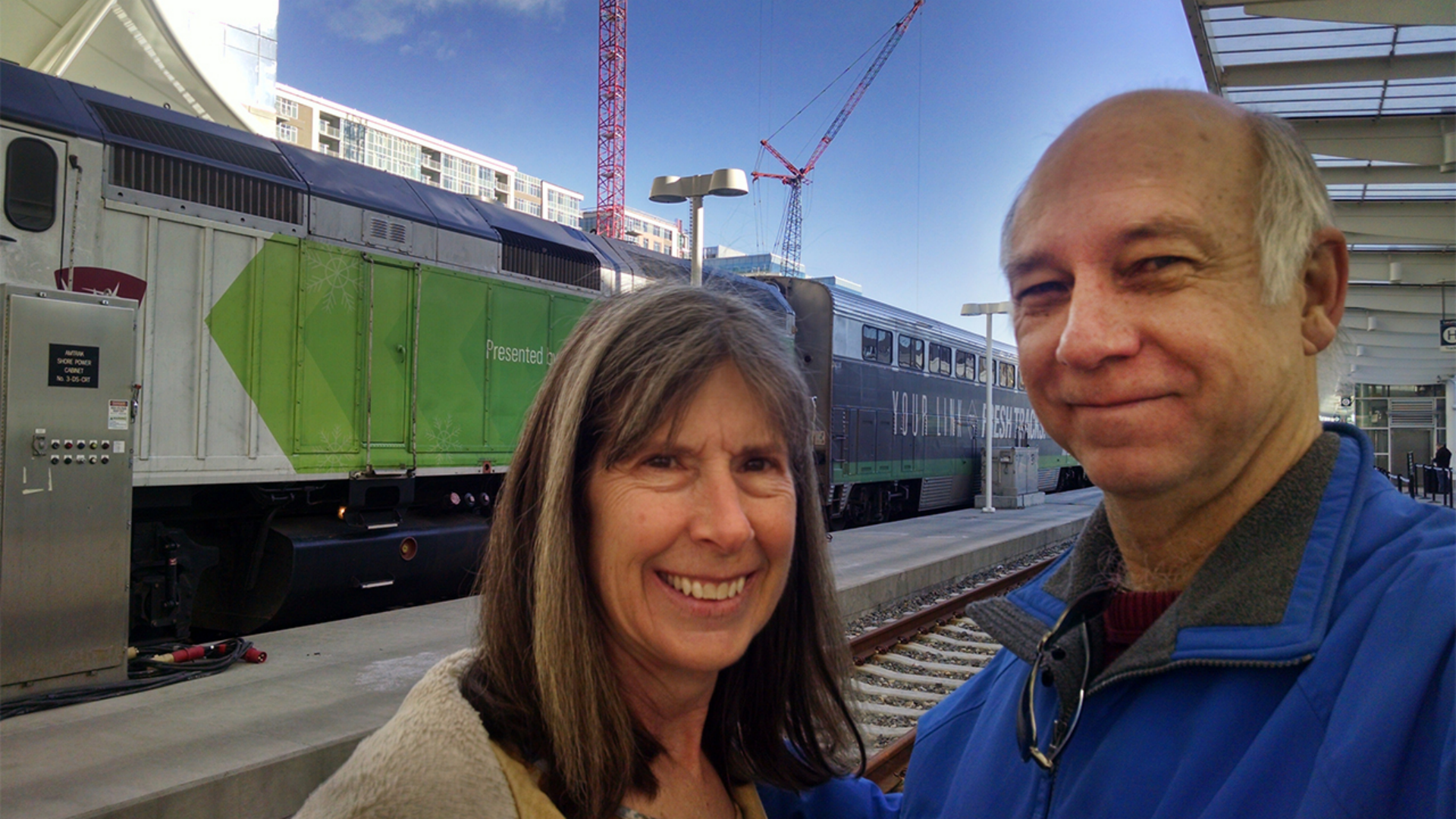
Embedded Energy

Rail Travel

平成26年10月1日
新幹線開業50周年出発式

祝
東海道新幹線開業50周年
出発式





ATTENTION
SIDE POWER
CABINET
No. 3-05-01

Presented by

YOUR LINK TO FRESH TRACKS



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	● Fly first class	● Fly first class	● Fly first class

Your activity

[« Back to your account](#)

DAVID HARLAN GARDNER

Gold • Award miles: 39,044 • Million MilerSM balance: 1,965,928

Member since Jun 9, 1982

Your miles

What do you want to do? ▾

Activity date range

(• Required)

From •

Apr ▾

23 ▾

2020 ▾

To •

Oct ▾

23 ▾

2020 ▾

Search

[AAdvantage program updates »](#)
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Your activity

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From •

Apr ▾ 23 ▾ 2020 ▾

To •

Oct ▾ 23 ▾ 2020 ▾

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[AAdvantage program updates »](#)
[Earn and redeem miles with American »](#)

Cruises















SKY BAR





Carbon Offsets



“Offsetting is, to be blunt, a scam....
It does not work, once you emit
you are changing the climate.”

- Kevin Anderson, professor of energy and
climate change at the University of Manchester

Gold Standard
goldstandard.org

Carbon Offsetting Companies Compared
ethical.net/climate-crisis/carbon-offsetting-
companies-compared

Getting Around Town



Getting Around Town With a Smaller Footprint

- Your Feet
- Bicycle
- Bus
- Car-Pool
- Avoid Unnecessary Trips
- Combine Trips
- Smarter Driving
- Delivery – Better Than We Thought

Walk!





OPEN KITCHEN

Bicycle!





I Ride with M...

GrowthBusters



Take the Bus





Car-Pool



Skip the Trip / Combine Trips



Eco-Conscious Driving



Eco-Conscious Driving

- Avoid Idling
- TRY to Save Gas – That Reduces CO₂
- Drive the Speed Limit
- Look Ahead & COAST to Red Lights
- Avoid Jack-Rabbit Starts
- Run Stop Signs & Red Lights Where Possible
- Lose the Rack in the Off-Season

Avoid Idling



Avoid Idling

DROP OFF / PICK UP ZONE

- 1. Pick up/Drop off zone is within the two yellow lines.**
- 2. Please move up to the 2nd yellow line to wait.**
- 3. Please do not leave your vehicle.**
- 4. Children are to remain on the footpath.**
- 5. Please keep traffic flowing.**
- 6. If child is not ready exit and re-enter.**

Avoid Idling

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4. Children are to remain on the footpath.
5. Please keep traffic flowing.
6. If child is not ready exit and re-enter.
7. Turn off engine while waiting

Drive the Speed Limit

- Every mph over 55 costs you 1 to 2% of your fuel economy

Coast to Red Lights & Avoid Jack-Rabbit Starts



Eco-Conscious Driving

- Avoid Idling
- TRY to Save Gas – That Reduces CO₂
- Drive the Speed Limit
- Look Ahead & COAST to Red Lights
- Avoid Jack-Rabbit Starts
- **Run Stop Signs & Red Lights Where Possible**
- Lose the Rack in the Off-Season

Lose the Rack in the Off-Season Gain Up to 13 MPG



Eco-Conscious Driving

- Avoid Idling
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Delivery



Getting Around Town With a Smaller Footprint

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- Avoid Unnecessary Trips
- Combine Trips
- Smarter Driving
- Delivery – Better Than We Thought

We're All in Charge

